CLAIMS:

1. A two-part electrical connector, said connector having

a first part being a tongue portion having a base and a tongue extending longitudinally therefrom;

a second part being a socket portion having a base and walls extending therefrom defining a socket for slidably receiving the tongue, the tongue portion and socket portion having locking means to permit releasable mutual engagement, said locking means including a locking member moveable between a first position in which the tongue is held in the socket and a second position in which the tongue is removable from the socket;

a primary coupling element located in the tongue; and

a secondary coupling element located in at least one of the socket walls, which elements provide a contact-less electromagnetic coupling when the tongue is engaged in the socket.

2. A two-part electrical connector according to claim 1, wherein the primary coupling element extends longitudinally adjacent an outer surface of the tongue and the secondary coupling element extends longitudinally adjacent a corresponding inner surface of a socket wall so that in use overlap of the primary and secondary coupling elements permits lateral and/or longitudinal movement of the tongue within the socket whilst maintaining electromagnetic coupling.

3. A two-part electrical connector according to claim 1 or claim 2, wherein the primary and secondary coupling elements are primary and secondary inductors respectively and each include a conductive coil wound around a ferromagnetic core.

4. A two-part electrical connector according to claim 3, wherein the secondary conductive coil is located in the socket base and the secondary inductor core has two elongate arms extending into the socket walls so that when the tongue is engaged in the socket, the primary inductor is located between the two arms.

5. A two-part electrical connector according to claim 4, wherein the primary inductor coil is located in a rear portion of the tongue and the primary inductor core has two elongate arms extending to a forward portion of the tongue so that when the tongue is engaged in the socket, the primary inductor arms are located between and overlap with the secondary inductor arms.

6. A two-part electrical connector according to claim 4 or claim 5, wherein at least one of the elongate arms is spaced from the rest of the core to permit independent movement of the elongate arm with respect to the rest of the core whilst in electromagnetic communication with the rest of the core.

7. A two-part electrical connector according to any one of claims 4 to 6, wherein the primary and secondary cores are made from a ferrite material.

8. A two-part electrical connector according to claim 7, wherein the primary core and the secondary core are made from ferrite particles dispersed in a resilient matrix.

9. A two-part electrical connector according to claim 1 or claim 2, wherein each of the primary and secondary elements is one half of a capacitor structure so that when the tongue is engaged in the socket a capacitor structure is formed to enable capacitive coupling.

10. A two-part electrical connector according to claim 9, wherein each of the primary and secondary coupling elements is a capacitor plate such that when the tongue is engaged in the socket there is overlap of the primary and secondary capacitor plates.

11. A two-part electrical connector according to any one of the preceding claims, wherein at least one of the socket walls contains an aperture adjacent the socket base so that dirt and dust can escape from the socket when the tongue is engaged in the socket.

12. A two-part electrical connector according to any one of the previous claims, wherein the socket portion includes two baffles located within the socket defining a guide channel for guiding the tongue, the baffles extending from the mouth end of the socket to a point spaced from the base of the socket portion so that dirt and debris pushed into the guide channel by the tongue can escape from the guide channel through the space between the socket base and the baffles.

13. A two-part electrical connector according to any one of the previous claims, wherein the locking means includes a resilient latch and a detent for cooperating with the latch.

14. A two-part electrical connector according to claim 13, wherein the resilient latch is located on the tongue and the detent is located in a corresponding socket wall.

15. A two-part electrical connector according to claim 13, wherein the tongue portion has two resilient latches spaced laterally from and located on either side of the tongue and the socket portion has two detents located in corresponding socket walls.

16. Apparatus for transmitting electrical signals between electrical equipment, including a two-part electrical connector according to any one of the previous claims and a webbing strap connected to at least one part of the connector, wherein the webbing strap contains electrical wires which are electrically connected to a coupling element in the connector.

17. A tongue portion for use in a two-part electrical connector according to any one of claims 1 to 15, wherein the tongue portion includes a base and a tongue extending longitudinally therefrom, an electromagnetic coupling element located within the tongue, and locking means for co-operating with locking means of the socket portion for releasably holding the tongue in the socket.

18. A socket portion for use in a two-part electrical connector according to any one of claims 1 to 15, wherein the socket portion includes a base and socket walls extending longitudinally therefrom to define a socket for slidably receiving a tongue, an electromagnetic coupling element located within at least one of the socket walls and locking means for co-operating with locking means of the tongue portion for releasably holding the tongue in the socket.

19. Use of a two-part electrical connector according to any one of the previous claims to transmit electrical signals between electrical equipment.

20. A method of modulating the current characteristics in one or both of the primary and secondary coupling elements in a two-part electrical connector according to any one of claims 1 to 15, said method including detecting the engagement status of the connector and adjusting the current characteristics in response to the detected status.

21. A method according to claim 20, wherein the engagement status is detected by detecting the change in impedance when the two-part connector is connected or disconnected.

22. A method according to claim 20 or claim 21, wherein the engagement status is detected by detecting the change in phase between current and voltage when the two-part connector is connected or disconnected.

23. A two-part electrical connector substantially as herein before described with reference to and as shown in Figs. 1 to 5.